



## DIRECTIVE NO. 01-1

# MANAGING STORM WATER ON STATE, FEDERAL AND DISTRICT-OWNED LANDS AND FACILITIES



In the *Chesapeake 2000* agreement, we committed to achieve and maintain the water quality necessary to support living resources of the Bay and its rivers and to protect human health. The agreement includes numerous commitments that, in total, will provide the efforts and tools necessary to improve water quality. This Directive addresses the commitment to “By 2001, develop an Executive Council Directive to address stormwater management to control nutrient, sediment and chemical contaminant runoff from state, federal and District owned land.”

Increased population and development within the watershed have created ever-greater challenges for us in the Bay’s restoration. Given the trends and projections regarding urban and suburban growth and the increase of imperviousness in the watershed, managing storm water runoff is an important activity for reducing pollutant loads to the Bay, maintaining the cap on nutrients, and sustaining our progress in restoring the Bay.

With this Directive, we commit to set an example for local governments and private land owners by demonstrating how to develop, fund, and implement innovative storm water management approaches and technologies on our own lands and facilities. We will show how to prevent storm water problems in the face of increased growth and development and how to remediate the storm water problems on lands that have already been developed. We will monitor our actions and share the results with other land owners in hopes that they will follow our lead so that storm water is better managed throughout the watershed. This Directive strives toward implementation of management and physical practices that comprehensively address all storm water related issues, including flow volume and velocity, pollution loads, stream channel integrity, groundwater recharge, and flooding.

Through implementation of the Clean Water Act, the Clean Air Act, and other federal, state, and local government regulatory programs, we have made strides in controlling storm water volume, velocity, and pollutant loads. We expect further progress in storm water management as we implement the National Pollutant Discharge Elimination System Phase II regulations and develop additional controls to address combined sewer overflows. However, as development increases with its associated pollution, we must do more to protect the Chesapeake Bay ecosystem. This Directive represents a voluntary commitment to efforts that build on the successes of these regulatory programs and go beyond compliance with existing regulatory storm water control programs to preclude costly remediation in the future.

### ***The Executive Council Finds That:***

- Storm water runoff causes flooding and degradation of the stream habitats of living resources. Impervious surfaces can produce nine times more runoff than forested land and can cause flooding and stream bank erosion. Watersheds with as little as 2% impervious surfaces have shown signs of habitat and living resource degradation. Impervious surfaces also prevent the storm water runoff from infiltrating into the ground and recharging streams.
- Based on estimates using Phase 4.3 of the Chesapeake Bay Program Watershed Model, storm water runoff from urban, suburban, commercial, and residential development transports a substantial portion of phosphorus (approximately 15%), nitrogen (approximately 14%), and sediment (approximately 9% from urban land areas) to the Chesapeake Bay.

- Storm water runoff from urban, suburban, commercial, and residential development transports a substantial portion of chemical contaminants to the Chesapeake Bay and its rivers. In several river watersheds, urban runoff loads of chemical contaminants rival or exceed point source loads of metals and polynuclear aromatic hydrocarbons.
- Over 1,570 miles of stream and 44 square miles of estuarine waters have been identified as impaired by storm water runoff in the Chesapeake Bay watershed signatory jurisdictions.
- The vast majority of land developed prior to the early 1980s in the Chesapeake Bay watershed has no storm water quality controls.
- Up until recent times, the management of flow has been the focus of storm water management. Technologies to better control and treat storm water are still evolving. Existing regulatory requirements and management practices must be enhanced to effectively prevent storm water runoff pollutant loads and impacts, especially in older urbanized areas where storm water treatment has not been implemented.
- In the future, urban storm water runoff problems are likely to be magnified due to cumulative effects from development, population growth, increases in impervious surfaces, and sprawl. Existing storm water management regulations, technology, and engineering practices are insufficient to handle these problems.
- The Chesapeake Bay Program partners should set an example for local governments and private land owners by demonstrating how to develop, fund, and implement innovative storm water management approaches on their own lands. These approaches should be based on innovative practices as well as proven technologies to help remediate the storm water problems in the Chesapeake Bay watershed and prevent further threats from future growth and development.

In support of these findings, we the Executive Council direct the state, federal and District partners to implement the principles and commitments outlined in this Directive.

## STORM WATER MANAGEMENT COMMITMENTS

To control nutrient, sediment, and chemical contaminants in storm water runoff from state, federal, and District owned lands and facilities, we commit to the following:

### I. CREATE AN INVENTORY OF TARGET PUBLIC LANDS

**Principle:** Focus enhanced storm water management on target public lands

- By 2002, develop an inventory of all public lands and facilities within the Chesapeake Bay basin that are owned by the signatories.
- By 2002, identify public lands and facilities to target for enhanced storm water management. These “target public lands” shall be chosen based on the following criteria:
  - areas impaired by storm water runoff and/or combined sewer overflows,
  - areas with a high potential for urban/suburban storm water pollution, and/or
  - areas with high growth and development pressures.

### II. DEMONSTRATE HOW TO MANAGE STORM WATER

#### A. Lands Developed or Redeveloped

**Principle:** Show leadership on how to prevent storm water runoff problems in the face of increased growth and development by striving to achieve a no net increase in storm water loads of nutrients, sediment, and chemical contaminants and maintain or restore predevelopment hydrologic regimes on lands being developed or redeveloped.

- By 2003, develop and implement procedures to ensure that all new development on public lands provides controls for both storm water quantity and quality during and following construction. By 2005, the signatories, including the Department of Transportation, will develop an approach to ensure the proper function and long-term

effectiveness of storm water management practices on public lands. The approach will include measures to ensure proper maintenance and inspections of storm water management practices and methods for minimizing the need, frequency, and costs of inspections and maintenance.

- By 2006, install at least 60 innovative storm water management demonstration projects that strive to achieve no net increase of pollutant loads and to emulate predevelopment hydrologic regimes on targeted public lands being developed or redeveloped. Demonstration projects should employ innovative practices that promote infiltration and prevent runoff from becoming polluted. Examples of practices are wise site planning, control of pollutants at the source, pervious pavements, rain gardens, and green roofs. Where more data are needed about the effectiveness of a particular practice, include monitoring and disseminate results within one year of its completion.

## B. Developed Lands

**Principle:** *Show leadership on how to retrofit developed lands that have no or minimal storm water controls in order to reduce water quality and quantity impacts caused by storm water runoff from existing development.*

- By 2008, achieve at least a 30% reduction of chemicals of concern found in storm water sources from public lands in the three toxic *Regions of Concern* (Anacostia River, Baltimore Harbor, and Elizabeth River watersheds). Employ practices to retrofit facility buildings, rooftops, parking lots, and roadways to enhance opportunities for infiltration of storm water runoff, control sources of pollution on these lands and facilities, and treat polluted runoff before it enters the Bay and rivers. Where more data are needed about the effectiveness of a particular practice, include monitoring and disseminate results within one year of its completion.
- By 2008 install at least 15 innovative storm water management demonstration projects on targeted developed public lands and facilities, outside the *Regions of Concern*. These projects should reduce storm water pollutant loads, reduce storm water volume and velocity, improve watershed hydrology, and restore aquatic habitat. Conservation and source control techniques are

encouraged to modify roofs, buildings, parking lots, green space, and streetscapes. Where more data is needed about the effectiveness of a particular practice, conduct monitoring and disseminate results within one year of completion.

## C. Roadways

- By 2002, the Urban Storm Water Workgroup, in consultation with the Transportation Workgroup of the Land, Growth, and Stewardship Subcommittee, shall establish a joint State Department of Transportation and Federal Highway Administration *ad hoc* Workgroup to share innovative approaches and technologies to managing storm water, effectively maintaining best management practices, and reducing use of roadway chemicals that could be harmful to the environment (salt, degreasers, motor oil, and pesticides). Successful innovative approaches will be shared with local government public works officials and other road building entities.
- By 2003, each Department of Transportation (DOT) shall develop a protocol to evaluate storm water management opportunities for DOT restoration, reconstruction, rehabilitation, and new construction projects, and by 2006, begin routinely implementing feasible storm water management practices on such projects.

## III. ANALYZE THE ECONOMICS AND EFFECTIVENESS OF DEMONSTRATION PROJECTS

**Principle:** *Continually evaluate and critique our efforts and share success stories and lessons learned with other land owners.*

- Within one year of completing the demonstration projects, analyze the effectiveness of each demonstration project, document success stories and lessons learned, and disseminate results that can be applied to other areas of the Chesapeake Bay watershed. This analysis should include an evaluation of the process used to implement and fund the project, the effectiveness of the project in reducing/eliminating storm water runoff volume and pollutant loads, and estimations on costs of the long term operation and maintenance of the project, and its application to other lands in the watershed.

#### IV. EDUCATE OTHERS ON HOW TO MANAGE STORM WATER

**Principle:** *Set the example for local governments, businesses, and the general public by highlighting demonstrations on how storm water runoff quality and quantity can be managed.*

- By 2002, establish an ongoing education program for all signatory partners' property managers and their contractors to stay current with the latest innovative storm water management technologies, including how to design, construct, maintain, and operate them. Share success stories, storm water management guidance documents, and all other relevant manuals and information with all government land owners in the watershed.
- By 2003, state, federal, and District agencies will work cooperatively with educational institutions to teach engineering students, landscape architects, and others about alternative approaches to conventional storm water management by demonstrating these approaches on university campus grounds. Demonstration projects will be monitored where there is insufficient pollutant removal information on a specific practice.
- By 2005, *Businesses for the Bay* will provide specific information and offer technical assistance to state, federal, and District-owned facilities on storm water practices that reduce nutrient, sediment, or chemical contaminant pollutant loads. The *Businesses for the Bay* Task Group will annually track the number of such interactions.

#### V. DEVELOP INNOVATIVE STORM WATER TECHNOLOGIES

**Principle:** *To develop innovative storm water management technologies that are economically and environmentally sustainable.*

- By 2003, state, federal, and District agencies will work cooperatively with research institutions to research and develop innovative storm water management technologies and approaches that will achieve the objectives and commitments in this Directive.

- The Urban Storm Water Work Group will support the Land, Growth, and Stewardship Subcommittee in its effort to evaluate the legal, institutional, and financial obstacles/impediments to implementing new and innovative storm water management practices, including low impact design techniques, and make recommendations for overcoming the identified obstacles/ impediments.
- Seek reductions from storm water pollutant sources by promoting aggressive pollution prevention activities and innovative control technologies.

#### VI. COORDINATE WITH COMMUNITIES AND LOCAL GOVERNMENTS

**Principle:** *Participate in community-based small watershed planning efforts to encourage communities and local governments to undertake initiatives to control storm water runoff from their lands. Coordinate storm water control solutions so they are integrated into regional or watershed scale plans.*

- By 2003, identify small watersheds where community-based organizations are taking essential actions to better manage storm water runoff in order to achieve the Chesapeake Bay Program's water quality and living resource restoration goals. In these watersheds participate in community-based watershed restoration activities and provide assistance to community organizations to encourage appropriate approaches for storm water management.
- By 2003, develop and implement procedures to coordinate all new storm water management activities on public lands with local government watershed management plans that have been adopted by local governments. In the event that a local watershed plan is under development, the watershed partners will participate in the planning process to ensure that all new storm water management activities on public lands in the local watershed are coordinated with the plan when adopted.
- By 2003, each Department of Transportation shall develop a protocol to initiate storm water management opportunities with communities and local governments, in cases where a highway occupancy, access, or utility permit is required.

## VII. MEASURING PROGRESS

**Principle:** Evaluate and report on progress in meeting commitments.

- Report progress towards meeting these commitments annually to the Nutrient and Toxics Subcommittees and the Implementation Committee.

- Within one year after each specified commitment deadline, the Urban Storm Water Workgroup will evaluate progress toward meeting the commitment and determine if work plan revisions or further direction from the Executive Council are needed and will make appropriate recommendations through the Toxics and Nutrient Subcommittees to the Implementation Committee.

Date December 3, 2001

### CHESAPEAKE EXECUTIVE COUNCIL

FOR THE STATE OF MARYLAND



Pat N. Glendon

FOR THE COMMONWEALTH OF PENNSYLVANIA



Mark Schweiker

FOR THE COMMONWEALTH OF VIRGINIA



James S. Gilmore

FOR THE DISTRICT OF COLUMBIA



Anthony A. Williams

FOR THE CHESAPEAKE BAY COMMISSION



Rita E. Froelich

FOR THE UNITED STATES OF AMERICA



Christ. T. Hill